



US 20100195867A1

(19) **United States**(12) **Patent Application Publication**  
**Kipman et al.**(10) **Pub. No.: US 2010/0195867 A1**(43) **Pub. Date: Aug. 5, 2010**(54) **VISUAL TARGET TRACKING USING MODEL  
FITTING AND EXEMPLAR****Related U.S. Application Data**(60) Provisional application No. 61/148,892, filed on Jan.  
30, 2009.**Publication Classification**(51) **Int. Cl.**  
**G06K 9/00** (2006.01)(52) **U.S. Cl.** ..... **382/103**(57) **ABSTRACT**

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WA (US)(21) Appl. No.: **12/367,435**(22) Filed: **Feb. 6, 2009**

A method of tracking a target includes receiving an observed depth image of the target from a source and analyzing the observed depth image with a prior-trained collection of known poses to find an exemplar pose that represents an observed pose of the target. The method further includes rasterizing a model of the target into a synthesized depth image having a rasterized pose and adjusting the rasterized pose of the model into a model-fitting pose based, at least in part, on differences between the observed depth image and the synthesized depth image. Either the exemplar pose or the model-fitting pose is then selected to represent the target.

